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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,925	03/12/2001	Ermanno Filippi	Q63473	7234
7590 11/14/2007 SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037-3202			EXAMINER BHAT, NINA NMN	
			ART UNIT 1797	PAPER NUMBER
			MAIL DATE 11/14/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/802,925	FILIPPI, ERMANNO	
	Examiner	Art Unit	
	N. Bhat	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7 and 9 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Application/Control Number:
09/802,925
Art Unit: 1797

Page 2

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 29, 2007 has been entered.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 3-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox, US Patent 3,717,129.

Fox teaches the invention substantially as claimed. Fox teaches a process of producing a heating fluid to be used as an indirect heating source in conducting reforming reactions. Fox teaches specifically providing a first liquid hydrocarbon fuel which is discharged from fuel reservoirs via conduit (4) into a combustion chamber (not shown) of an engine. A conduit (18)

Application/Control Number:
09/802,925
Art Unit: 1797

Page 3

is connected to the combustion Chamber of then engine (6) through the second chamber (14) of a fuel regenerator (10) in indirect heat exchange with the catalyst bed (16) in the first chamber (12) of the fuel generator tube. Fox then teaches that the heating fluid from the fuel regenerator via conduit (22) can pass hot reforming products can be placed in heat exchange relation with conduits (25) and (27) in order to preheat the reactants for the stream reforming reaction.

[Column 1, lines 24 to Column 2, line 66] The process as described by Fox includes the steps of feed a flow comprising hydrocarbon and gas flow comprising oxygen (air) to a combustor, the reactants are permitted to combust to produce a high temperature fuel which comprises carbon dioxide and oxygen, the process of Fox further includes adding steam or water in the fuel regenerator (10) thereby producing a heating fluid, which can be used to preheat reactants prior to steam reforming. The thermodynamics or creating a heating fluid which is indirect heat exchange relationship with the exhaust gas from an engine/combustor which is used to pre-heat hydrocarbon streams for steam refraining has been taught and described by Fox. [Note Columns 3, lines 64 to Column 4, line 56]

It would have been obvious to one having ordinary skill in the art from reading Fox to provide a method of producing a heating fluid using a combustor to produce a fluid which is used as an indirect heating exchange fluid which heats reactants for steam reforming. The concept of indirect heat exchange of fluids when combusting which provides a fluid which can be used in either direct or indirect heat exchange has been taught and suggested by Fox. The thermodynamics and mass and energy balance for using combustion from a engine with in combination with catalytic reforming and the concept of employing different streams from a combustor in order to be used as an indirect heat exchange fluid has been taught and suggested by Fox and producing a heating fluid has been taught by Fox. The concept of using a fluid from a combustion engine to preheat reactants prior to steam reforming has also been

Application/Control Number:
09/802,925
Art Unit: 1797

Page 4

taught in Fox and it is maintained that applicant's process as claimed is rendered obvious to one having ordinary skill in the art at the time the invention was made.

5. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The process wherein the amount of water is feed in an amount comprised between 0.1 and 0.7 times the flow comprising oxygen has not been taught or fairly suggested either singularly or in combination by the prior art.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee teaches a method and apparatus for maintaining the operating temperature in a device in which exhaust gases are passed from an engine through a fuel reforming in indirect heat exchange with fuel and stream in contact with a catalytic bed for steam reforming the fuel. Schirmer et al. teach an apparatus which removes sulfur from a fuel and then burns the fuel in a two stage combustor to produce heating fluids.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
09/802,925
Art Unit: 1797

Page 5

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


N. Bhat
Primary Examiner
Art Unit 1797